

IN THE CLAIMS

Please amend claims 30, 33, 34, 40, 44, 45, 50, and 53 as shown. Please add claims 56-62. Please cancel claims 35, 39, and 52. The current status of the claims is reflected in the below listing of claims.

Claims 1. - 29. (Canceled)

30. (Currently amended) A method for electrolytic deposition of bronze onto a substrate, the method comprising:

(i) immersing ~~a~~ the substrate in an aqueous acidic electrolyte having a pH less than about 1 and ~~containing~~ comprising:

- a) tin ions;
- b) copper ions;
- c) an alkylsulfonic acid; ~~and~~
- d) an aromatic, nonionic wetting agent; and
- e) an oxidation inhibitor;

wherein a ratio of tin ion concentration to copper ion concentration is sufficient to electrolytically deposit a bronze having a copper content of greater than about 60%;
and

(ii) applying a current at a current density sufficient to electrolytically deposit bronze having the copper content greater than about 60% onto the substrate.

31. (Previously presented) The method of claim 30 wherein the alkylsulfonic acid is present in the electrolyte at a concentration of from 140 to 382 g/L of electrolyte.

32. (Previously presented) The method of claim 30 wherein the alkylsulfonic acid comprises methanesulfonic acid in a concentration of at least about 290 g/L.

33. (Currently Amended) The method of claim 30 wherein the electrolyte ~~further comprises an~~ oxidation inhibitor **is selected from the group consisting of monohydroxybenzene compounds, polyhydroxybenzene compounds, and a combination thereof.**

34. (Currently amended) The method of claim 30 wherein the electrolyte ~~further~~ comprises a dihydroxybenzene compound as ~~an~~ **the** oxidation inhibitor.

35. (Canceled)

36. (Previously presented) The method of claim 30 wherein the aromatic, nonionic wetting agent is present in the electrolyte at a concentration of from about 2 to about 40 g/L.

37. (Previously presented) The method of claim 30 wherein tin methanesulfonate is present in the electrolyte in an amount of from about 5 to about 195 g/L of electrolyte, thereby providing the tin ions at a concentration of from about 2 to about 75 g/L of electrolyte.

38. (Previously presented) The method of claim 30 wherein copper methanesulfonate is present in the electrolyte in an amount of from about 8 to about 280 g/L of electrolyte, thereby providing the copper ions at a concentration of from about 2 to about 70 g/L of electrolyte.

39. (Canceled)

40. (Currently amended) An aqueous acidic electrolyte ~~containing~~ **comprising:**

- a) tin ions;
- b) copper ions;
- c) an alkylsulfonic acid; and
- d) an aromatic, nonionic wetting agent; and
- e) an oxidation inhibitor;**

wherein the aqueous acidic electrolyte has a pH less than about 1 and a ratio of tin ion concentration to copper ion concentration is sufficient to deposit a bronze having a tin/copper ratio of about 40/60, about 20/80, or about 10/90.

41. (Previously presented) The electrolyte of claim 40 wherein the alkylsulfonic acid is present at a concentration of from about 140 to about 382 g/L of electrolyte.

42. (Previously presented) The electrolyte of claim 40 wherein the alkylsulfonic acid comprises methanesulfonic acid.

43. (Previously presented) The electrolyte of claim 40 wherein the alkylsulfonic acid comprises methanesulfonic acid in a concentration of at least about 290 g/L.

44. (Currently Amended) The electrolyte of claim 40 ~~further comprising an~~ **wherein the** oxidation inhibitor **is selected from the group consisting of monohydroxybenzene compounds, polyhydroxybenzene compounds, and a combination thereof.**

45. (Currently amended) The electrolyte of claim 40 ~~further~~ comprising a dihydroxybenzene compound as ~~an~~ the oxidation inhibitor.

46. (Previously presented) The electrolyte of claim 40 wherein the aromatic, nonionic wetting agent is present in the electrolyte at a concentration of from about 2 to about 40 g/L of electrolyte.

47. (Previously presented) The electrolyte of claim 40 wherein the tin ions are present at a concentration of from about 2 to about 75 g/L of electrolyte, and the copper ions are present at a concentration of from about 2 to about 70 g/L of electrolyte.

48. (Previously presented) The electrolyte of claim 40 further comprising a wetting agent selected from the group consisting of an anionic wetting agent, an aliphatic, nonionic wetting agent, and combinations thereof.

49. (Previously presented) The electrolyte of claim 40 further comprising a gluconate.

50. (Currently amended) The electrolyte of claim 40 ~~further comprising~~ wherein the oxidation inhibitor is hydroquinone.

51. (Previously presented) The electrolyte of claim 40 further comprising a brightener selected from the group consisting of aromatic carbonyl compounds, α,β -unsaturated carbonyl compounds, and combinations thereof.

52. (Canceled)

53. (Currently amended) An aqueous acidic electrolyte containing:

a) divalent tin ions at a concentration of from about 2 to about 75 g/L of electrolyte;

b) divalent copper ions at a concentration of from about 2 to about 70 g/L of electrolyte;

c) an aromatic, nonionic wetting agent at a concentration of from about 2 to about 40 g/L of electrolyte;

d) a stabilizer, complexing agent, or mixture thereof at a concentration of less than about 50 g/L of electrolyte;

e) a wetting agent selected from the group consisting of an anionic wetting agent, a nonionic, aliphatic wetting agent, and mixtures thereof at a concentration of less than about 10 g/L of electrolyte;

f) an oxidation inhibitor selected from the group consisting of monohydroxybenzene compounds, polyhydroxybenzene compounds, and a combination thereof at a concentration of less than about 5 g/L of electrolyte;

g) a brightener at a concentration of less than about 5 g/L of electrolyte; and

h) an alkylsulfonic acid at a concentration of at least about 140 g/L of electrolyte;

wherein the aqueous acidic electrolyte has a pH less than about 1 and a ratio of tin ion concentration to copper ion concentration is sufficient to deposit a bronze having a tin/copper ratio of about 40/60, about 20/80, or about 10/90.

54. (Previously presented) The electrolyte of claim 53 wherein the alkylsulfonic acid comprises methanesulfonic acid.

55. (Previously presented) The electrolyte of claim 53 wherein the alkylsulfonic acid comprises methanesulfonic acid in a concentration of at least about 290 g/L.

56. (New) The method of claim 30 wherein the ratio of tin ion concentration to copper ion concentration is about 40/60.

57. (New) The method of claim 30 wherein the ratio of tin ion concentration to copper ion concentration is about 20/80.

58. (New) The method of claim 30 wherein the ratio of tin ion concentration to copper ion concentration is about 10/90.

59. (New) The method of claim 30 wherein the current density is at least about 7 A/dm².

60. (New) The method of claim 30 wherein the aromatic, nonionic wetting agent is β -naphthol ethoxylate.

61. (New) The electrolyte of claim 40 wherein the aromatic, nonionic wetting agent is β -naphthol ethoxylate.

62. (New) The electrolyte of claim 53 wherein the aromatic, nonionic wetting agent is β -naphthol ethoxylate.